

MATING BEHAVIOUR OF THE INDIAN GREY MONGOOSE *HERPESTES EDWARDSII EDWARDSII* GEOFFROY¹

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(With a text-figure)

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A study of copulatory behaviour of the grey mongoose *Herpestes edwardsii edwardsii*, was made in captivity on 5 adult mongooses consisting of 2 males and 3 females. Both true and false mountings were recorded, in which the mountings occurred between the members of same sex or opposite sex. In the latter case, mounting between a dominant male and a dominant female usually resulted in true mounting and it lasted from 50 to 150 sec. The maximum frequency of mounting between a dominant male and a dominant female coincided with the oestrus of the female. The general pattern of mounting observed is compared with other species of mongooses. The role of heterosexual mounting in sexual orientation in their social behaviour is discussed.

INTRODUCTION

The courtship and mating behaviour has a close correlation with the social habit of animals and their social integration. In carnivores, generally pairing is not a temporary affair, in which sexually motivated individuals meet, copulate and part. In some cases it is a prelude to a partnership in which the male as well as the female will have parental responsibilities lasting till the young become self-supporting. Among viverrids the reproductive behaviour has been described in a relatively few species, which show that there is considerable diversity within the family (Ewer 1973). The members of herpestinae, a subfamily under Viverridae, comprising exclusively of mongooses, have received moderate attention with respect to their reproductive behaviour and parental care and the investigations are restricted to observations in captivity (Ducker 1960, Zannier 1965, Neal 1970, Ewer 1973, Rasa 1973a, b, 1977; Rood 1980, Jacobsen 1982). However there is no

scientific data available on the mating behaviour of Indian Grey mongoose *Herpestes edwardsii edwardsii*. In this paper we have made a comprehensive study on the reproductive behaviour of grey mongoose in captivity.

MATERIALS AND METHODS

The grey mongooses used in the study consisted of 5 adult individuals: 2 males and 3 females captured in semiurban surroundings around the city of Mysore. The animals were housed in 4 cages with movable partition each measuring 90 cm x 45 cm x 45 cm which were serially connected with a free passage in between. The food provided once a day in the morning included beef liver, chicken heads, rats and mice often supplemented with chicken eggs taking care to see that each animal received sumptuous amount of food approximately 1/4 of its body weight. Water was provided *ad libitum*.

The individuals were kept together for about 3 months before the commencement of observation for mating behaviour during which time a social hierarchy became established. The observations were for an average duration of 3 hours per day for about 50 days. Most of the

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observations were made from behind a black curtain with peep holes in front of the cages. Simultaneously the reproductive status of the females was also determined everyday by the examination of the vaginal smear collected by restraining the animal using movable partition of the cage.

TABLE 1a
FREQUENCY OF MOUNTING OBSERVED IN A
GROUP OF 5 MONGOOSES

Mounting individual	Mounted individual				
	♂1	♂2	♀1	♀2	♀3
♂1	-	15	178	10	12
♂2	0	-	15	12	18
♀1	25	20	-	5	2
♀2	0	8	0	-	6
♀3	0	5	7	0	-

TABLE 1b
MEASURES OF COPULATORY BEHAVIOUR
OBSERVED IN A PAIR OF DOMINANT ADULT
MONGOOSES

Total mounts	178
Mating with ejaculation	16
Percentage of mating with ejaculation	8.98
Mean number of intromissions to ejaculate (M ± S.E.)	18.44 ± 0.848
Mean duration of time (in secs) of a mount with ejaculation (M ± S.E.)	103.47 ± 3.997

The frequency with which each individual of the group mounted one another is given in Table 1a, in the form of a matrix. Table 1b gives the measurements of copulatory behaviour recorded for a pair of dominant mongooses. The licking of genitals by both partners following the break of copulation was taken as a criterion for a true and complete copulation (Rasa 1977).

OBSERVATIONS AND DISCUSSIONS

Two categories of mounting were

distinguished: (a) 'False mounting' was observed to occur between the members of the same sex or opposite sex. It was characterised by the non-occurrence of premounting rituals; (b) Mounting between a dominant male and a dominant female usually resulted in true mounting. The occurrence of mounting was more ritualistic and far more frequent between a dominant male and a dominant female compared to the mountings occurring between subordinate individuals. The maximum frequency of the mounting between a pair of dominant individuals coincided with the oestrus of the female (Fig. 1A). A pronounced friendly interaction was also noticed between the partners during this period. They remained in contact, slept together and groomed each other more frequently.

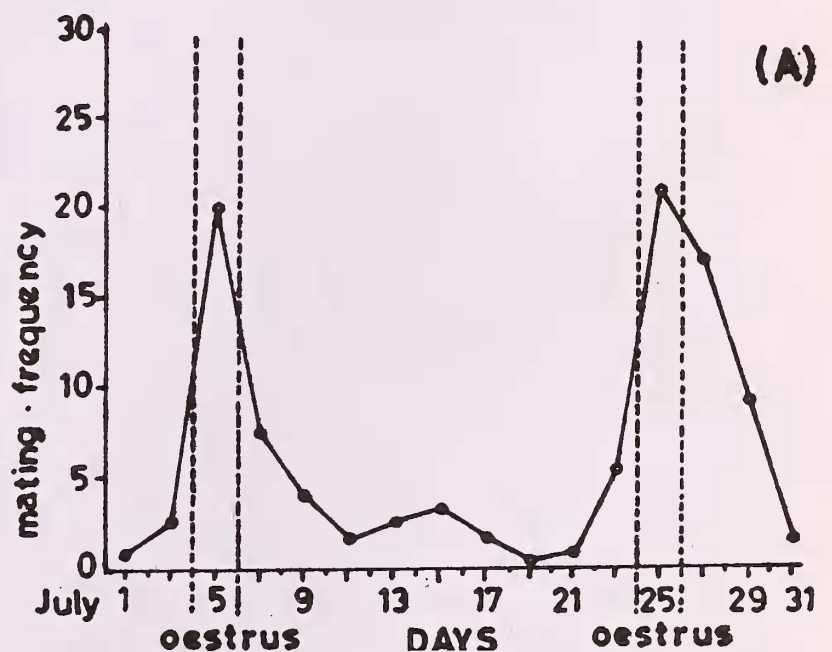


Fig. 1A. Frequency of mounting on an adult dominant pair of mongooses during oestrus of the female.

The oestrus female which was maximally receptive responded to an investigating male by not moving away. The preliminary investigatory activity by the male included sniffing and smelling of the snout and anogenital region of the female. When the male mounted from the posterior side by clasping the sides of the female with its forelimbs the female attained a receptive posture by arching its back slightly and moving her tail aside (Fig. 1B, i). The male clasped the

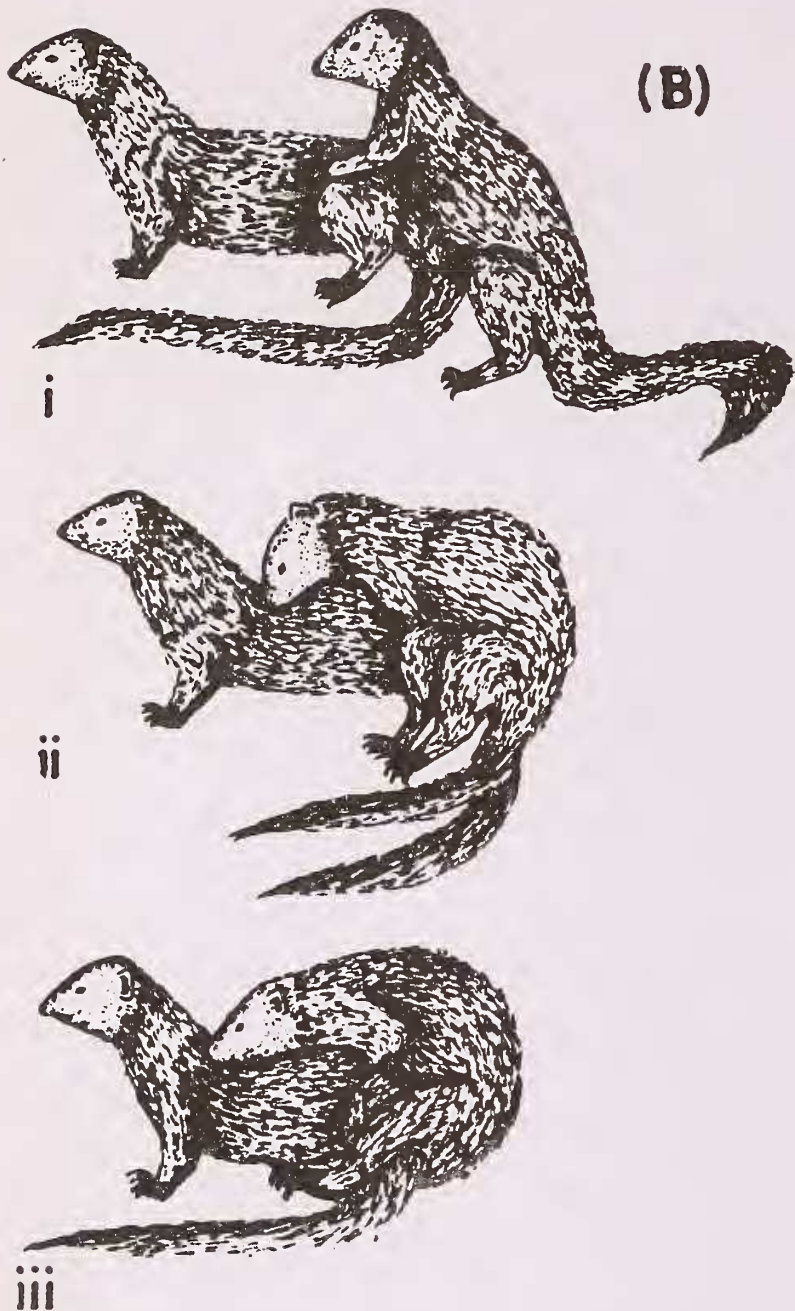


Fig. 1B. Postures adopted by a pair of mongooses during different stages of mounting.

(i) Preliminary stage of mounting by a male with a reciprocating female. (ii) Intermediate stage of mounting with the male holding the female and beginning the intromissions. (iii) Final stage of intromission.

Note the position of chin of the male and the hind-legs which are raised from the floor.

flank of the female and intromission followed (Fig. 1B, ii). Towards the end of the process the male flexed one or both the hind limbs and lifted them off the floor and placed its chin pressed against the side and neck of the female (Fig. 1B, iii). Soon after the copulation the partners parted company, sat on their hind limbs

and licked their genitals. This behaviour was however not observed at the end of all mountings. A true mounting beginning with the rapid thrusts and ending with the ejaculatory thrusts lasted from 50-150 secs. The male was found not to be successful in mounting in all its attempts. This was more evident in case of mounting involving the subordinate male. In such instances the female moved away in the midst of the process which sometimes dislodged the male.

Of the total mountings occurring between the members of highest rank 8.98% of the mountings resulted in ejaculation. The dominant male always preferred to mount the dominant female. Among false mountings 76.68% were heterosexual and 23.31% were homosexual. The Mann-Whitney 'U' -test showed that in a group the tendency for heterosexual mounting is more compared to homosexual mounting ($P < 0.1$).

The general pattern of mounting observed in captive grey mongoose is similar to what has been reported in other mongooses like *Herpestes ichneumon* (Ducker 1960), *Helogale parvula* (Zannier 1965, Rasa 1973, Rood 1980), *Mungos mungo* (Neal 1970), *Herpestes sanguineus* (Jacobsen 1982) and *Helogale undulata rufula* (Rasa 1977). In all these mongooses there is more or less uniform short preliminary premounting sessions. The increased marking behaviour during the oestrus of the female reported in *Crossarchus* (Ewer 1973) and *Helogale undulata rufula* (Rasa 1977) was not observed in the present study. However the oestrus of the female was marked by a high frequency of mounting as reported in dwarf mongooses (Rasa 1977). The grey mongooses also differ from meerkats (Ewer 1973) in not showing the typical 'neck-gripping' - a means of inducing passivity in a recalcitrant female. Lacking a neck grip and the manner in which the male thrusts its head against the female's

neck as observed in the grey mongoose have also been reported in *Herpestes* and *Mungos* (Ewer 1973).

The short premounting rituals among the captive group may be attributed to a high social organisation. Due to prior familiarity between the partners in a captive social group, there appears to be no need for prolonged preliminaries leading to establishment of contact. The act of mounting does not seem to inflict any rivalry between individuals. Neal (1970) has made a similar observation in *Mungos mungo*. In the present case it may be due to the fact that the observations are confined to a socially stabilised group where definite hierarchy had been established. Less frequent occurrence of

mating between subordinate individuals may also be due to the same reason. Occurrence of homosexual mountings has also been reported in *Helogale undulata rufula* (Rasa 1973a, 1976) and *Helogale parvula* (Rasa 1973b). In the grey mongooses though both homo- and heterosexual mountings have been recorded, the higher frequency of the heterosexual mounting suggests that mounting is sexually oriented.

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